

CAPACITOR CHARGING CIRCUIT WITH A SOFT-START FUNCTION

Abstract

When a primary winding current increases to an upper limit determined by a reference voltage having a soft-start characteristic, a power switch is turned OFF. When a secondary winding current decreases to a lower limit determined by another predetermined reference voltage, the power switch is turned ON. A minimum ON-time limiting unit prevents the power switch from being turned OFF before a minimum ON-time expires. The minimum ON-time may be provided with a soft-start modulation. A minimum OFF-time limiting unit prevents the power switch from being turned ON before a minimum OFF-time expires. A maximum ON-time limiting unit prevents the power switch from still remaining ON after a maximum ON-time expires.